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ripple

International Financial Services Centres Authority
2nd & 3rd Floor, PRAGYA Tower
Block 15, Zone 1, Road 1C, GIFT SEZ
GIFT City, Gandhinagar,
Gujarat 382 355, India

Email:

- Mr. Praveen Kamat, General Manager, Department of Capital Markets - praveen.kamat@ifsca.gov.in
- Mr. Matam Satya Prateek, Assistant Manager, Department of Capital Markets - prateek.matam@ifsca.gov.in

Dear Sirs,

Ripple Labs Inc. ("Ripple") welcomes the opportunity to provide feedback and comments on the International Financial Services Centres Authority ("IFSCA") consultation paper concerning a regulatory approach towards tokenization of Real-World Assets ("Consultation").[1]

Ripple would like to thank the IFSCA for the comprehensive efforts that have been undertaken in producing this consultation paper, as well as for the opportunity to provide our comments. We respectfully request that you take them into consideration as you consider the policy direction and development of a regulatory framework for tokenized real-world assets ("RWA"s).

Ripple, in partnership with the Boston Consulting Group, recently published a report on tokenization,[2] which highlights that the financial industry is undergoing a significant transformation as tokenization reshapes traditional asset management. By converting assets into programmable, interoperable digital tokens recorded on shared ledgers, financial systems are becoming more efficient, accessible, and responsive to modern market demands.

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[1] See https://ifsca.gov.in/Viewer?Path=Document%2FReportandPublication%2Fifsca-consultation-paper-on-regulatory-approach-towards-tokenization-of-real-world-assets03032025111644.pdf&Title=Regulatory%20Approach%20towards%20Tokenization%20of%20Real-World%20Assets&Date=26%2F02%2F2025, *Regulatory Approach towards Tokenization of Real-World Assets.*

[2] See https://ripple.com/reports/approaching-tokenization-at-the-tipping-point.pdf, *Approaching the Tokenization Tipping Point.*

The policy implications of this transformation are critical, and will need regulators and policymakers to develop regulatory frameworks that:

- Support regulatory harmonization – Developing clear and consistent regulations across jurisdictions is crucial to facilitate the growth of tokenized markets.
- Develop infrastructure – Investing in robust digital infrastructures, including custody solutions and interoperable platforms, will support the scalability of tokenization.
- Enhance public-private collaboration – Engaging with industry stakeholders to establish standards and best practices will ensure the secure and efficient implementation of tokenization technologies.

In responding to the consultation paper, we wish to bring to the attention of the IFSCA the following key themes:

- As regulators globally continue to develop their capacity to regulate the tokenization lifecycle, it is essential that regulators allow for a flexible, forward-thinking approach to tokenization.

  Ripple believes that limitations to the tokenization process, be it on the class of underlying assets permitted or technology, would adversely affect the growth of industry. Ripple also believes that a functional and risk based approach that leverages regulatory sandboxes would serve to spur innovation and growth of the sector.

- Ripple firmly believes that institutional markets play a key role in scaling RWA tokenization. A clear pathway for this growth can be established through a combination of targeted short-term reforms and a longer-term regulatory assessment.

  In the short term, enhancing sandbox initiatives can create a practical testing environment for regulatory modifications that support tokenization in institutional markets. Over the longer term, a comprehensive evaluation of the alignment of distributed ledger technology ("DLT") with existing regulatory frameworks - including securities laws, property and ownership rights, contract law, and clearing and settlement mechanisms - can help ensure scalability, regulatory clarity, and the sustainable development of tokenized markets.

- Finally, Ripple believes that a mature tokenization ecosystem will require several regulated and unregulated market players to coexist, including exchanges, on-chain analytic tools, insurance, etc. While Ripple understands that this consultation paper does not seek to regulate cryptocurrencies, Ripple believes that well-regulated, fiat-backed stablecoins would offer a low risk enabler to capitalize on the full potential of tokenization technology by providing an effective means of settlement for tokenized RWAs.

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With this overview, Ripple respectfully submits the following responses to the questions set forth in the Consultation in the attached Appendix.

We also welcome the opportunity for ongoing engagement with the IFSCA on the regulatory treatment of tokenized RWAs. Should the IFSCA wish to discuss any of the points raised as part of this feedback to the consultation paper, please do not hesitate to contact:

- Rahul Advani (Global Co-Head of Policy) at radvani@ripple.com;
- Abdallah Mukalled (Senior Policy Manager, MEA) at amukalled@ripple.com; and
- Caren Tso (Policy Manager, APAC) at ctso@ripple.com.

Sincerely,

Ripple Labs Inc.

APPENDIX

Ripple respectfully submits the following feedback to Question Sets 1-4 set forth in the Consultation.

Question Set 1: Definition and some key characteristics of Digital Tokens

Q1.1a.1: What are the classes of real-world assets that may be considered for tokenization?

Ripple agrees with the classes of RWAs that may be considered for tokenization established by the IFSCA in its paragraph on Objectives in the Consultation (i.e. financial securities, financial products, commodities, intellectual property, and commercial real estate.)

However, we recognize that tokenization is not limited to these categories. Given the nature of RWA tokenization, a wide range of assets and even instruments with economic value can be tokenized if the right utility and market infrastructure are established. Rather than prescribing a fixed set of RWAs that can be tokenized on the blockchain, we suggest focusing on key criteria that determine whether an asset is suitable for tokenization. This approach ensures flexibility, enables innovation and market-driven adoption while preventing undue restrictions. This will be further discussed in our response to Q1.1a.2 and Q1.1a.3.

By establishing criteria rather than defining a strict set of RWAs, tokenization can evolve based on market needs rather than being constrained to a classification of approved RWAs. While we recognize the importance of tokenized financial instruments (e.g., securities, bonds, and credit markets), other use cases - such as tokenized utilities, intellectual property, and emerging digital-native assets - could also drive meaningful innovation.

While this consultation paper does not seek to cover digital assets such as Central Bank Digital Currencies (CBDCs) and crypto assets referencing alternative assets such as artwork (NFTs), we believe it is important to acknowledge the broader scope of assets that can benefit from RWA tokenization.

In particular, we would suggest that central bank or government-backed instruments - such as Treasury Bonds - be considered a distinct class of RWAs. These instruments differ from traditional securities due to their issuer, lower risk profile, and direct interaction with monetary policy.

Additionally, we recommend broadening the category of real estate assets beyond commercial real estate as per IFSCA's Objectives paragraph. Tokenization of RWAs can unlock new opportunities for residential properties

and Real Estate Investment Trusts ("REIT"s) by enabling fractional ownership and enhancing liquidity in traditionally illiquid markets.

Ultimately, while any range of assets with economic value can be tokenized on the blockchain, the key challenge lies in building the necessary infrastructure, regulatory frameworks, and market adoption to establish real-world utility and ensure long-term viability. While consumer protection and financial stability should serve as priorities when addressing these challenges there should also be due consideration to enabling innovation in a nascent industry. This will be covered in the subsequent responses in detail.

Q1.1a.2: What are the characteristics of a given real-world asset class, which can potentially determine the level of market acceptance, liquidity, and suitability for tokenization of the asset class?

As a leading provider of digital asset infrastructure for financial institutions, Ripple strongly believes that RWA tokenization can redefine how assets are managed, traded, and settled, therefore fostering a more efficient and transparent financial ecosystem. The suitability of an asset class for tokenization can be determined by several key characteristics including:

1. Ownership Structure and Legal Recognition

   The ownership structure of the asset (i.e. how simple it is to verify ownership) will be a key element in determining the ease and suitability of whether the asset can or should be tokenized. The process of tokenization is usually best suited to assets that have simple title registries and do not require additional due diligence mechanisms to determine ownership, which can slow and complicate the legal aspect of such a process.

2. Unrealized Value Due to Inefficiency or Untapped Potential

   RWAs best suited for tokenization are those with unrealized value due to untapped potential or existing inefficiencies.

   - Divisibility and fractal ownership

     For example, RWAs that can be divided into smaller tradeable units (i.e. real estate that can be divided into areas of square meters) can tap a high potential value. For certain physical commodities, this can be more challenging, especially where these commodities are perishable goods with a limited shelf life or can vary in quality (i.e. an apple from one farm can be different in quality to an apple from another, and because this fruit will degrade, it may be difficult to maintain value over time, proving less suitable for tokenization). Factors such as price standardization and fair

distribution amongst token owners therefore are important considerations prior to any tokenization.

- Inefficiencies

  As mentioned in the background of this Consultation, trade finance is another example where existing inefficiencies could benefit from the efficiencies of tokenization in order to simplify legal rights and unlock further capital. Trade finance is currently plagued with a gap of US $2.5 trillion.[3] Tokenizing different instruments within the trade finance chain can unlock value for existing financial institutions and provide new sources of capital.

3. Market Infrastructure and Secondary Market Liquidity

   A strong market infrastructure and active secondary markets are crucial in determining the suitability of RWAs tokenization. Secondary markets play a vital role in ensuring liquidity and price discovery, making them essential for the success of tokenized RWAs. To maximize the benefits of RWA tokenization, it is necessary to establish these key components within the secondary market:

   - Demand-Side Factors – Investor participation and institutional adoption drive liquidity in secondary markets. Factors such as ease of access, interoperability with traditional financial systems, and efficient trading mechanisms influence the level of demand for tokenized RWAs.
   - Supply-Side Factors – The availability of tokenized RWAs on secondary markets is critical. This would require issuers, market makers, and liquidity providers to facilitate smooth trading.

   An example of where such an initiative has fallen short can be seen in the Qatar Financial Centre ("QFC") tokenization regime as part of its Digital Assets Framework 2024.[4] The framework was established with no previous infrastructure in relation to secondary markets. What has become clear, as the QFC has struggled to operationalize this regulatory regime, is that for a tokenization framework to be successful, there first has to be an operational secondary market and digital asset ecosystem (i.e. exchanges, insurance, and software providers that can provide the services necessary for the industry to operate).

4. Settlement mechanisms and interoperability with other digital assets

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[3]See https://www.adb.org/sites/default/files/publication/906596/adb-brief-256-2023-trade-finance-gaps-growth-jobs-survey.pdf, *ADB Briefs: 2023 Trade Finance Gaps, Growth, and Jobs Survey.*

[4]See https://www.qfc.qa/en/media-centre/news/list/qatar-financial-centre-issues-qfc-digital-assets-framework-2024, *Qatar Financial Centre Issues QFC Digital Assets Framework 2024*

One of the key benefits of RWAs tokenization is real-time settlement where transactions are executed and finalized instantly, thus seamlessly operating 24/7 to bypass delays associated with operations and processes for traditional markets. RWAs tokenization drives market efficiency by eliminating delays in settlement and reconciliation often caused by intermediaries in traditional markets.

However, to fully realize these benefits, a robust settlement infrastructure is essential. Tokenized RWAs require reliable digital assets for on-chain settlement to ensure secure and efficient transactions. Stablecoins have emerged as a crucial part of the tokenization ecosystem as a method of settlement and serve as a solid compromise between settlement in unbacked digital assets subject to volatility and fiat settlement (the use of which ultimately defeats the purpose of tokenization).

An example of where progress has been made is in the Digital Rupee[5] initiative and the potential efficiencies that this could bring to tokenization, however we believe that in order to achieve the maximum benefits available, it is important for the IFSCA to remain agnostic in relation to the types of settlement assets available and permitted for use. This would allow for better cross-border interoperability, promote greater efficiencies and scale, and flexibility across the industry.

Q1.1a.3: For each of the given real world asset classes, what are the key legal and regulatory challenges that need to be addressed prior to enabling tokenization of the same?

Ripple believes that before RWA tokenization can be effectively implemented across the real world asset classes, the key legal and regulatory challenges would be establishing a clear token taxonomy and implementing licensing and legislative reform.

1. Token Taxonomy Framework

   A key to addressing the legal and regulatory challenges associated with tokenization would be establishing a taxonomy of the different types of tokens and associating a legislative classification with corresponding legal rights to each one. There are different methods of tokenizing RWAs (refer to Q1.1b.1) and these different approaches can lead to different legal classifications and rights associated with each type of token.

   Such a taxonomy will help identify how legal rights associated with a specific class of token will link to those associated with the tokenized

[5] See https://www.rbi.org.in/commonperson/english/Scripts/FAQs.aspx?Id=3686#:~:text=Digital%20Rupee%20or%20e%E2%82%B9,%2C%20finality%20of%20settlement%2C%20etc., *Digital Rupee (e₹) – FAQs*

RWA. Ideally any token should hold legal value and rights associated with it. Coupled with a clear taxonomy this should help resolve any disputes that should arise in relation to the ownership of the tokenized RWA.

For financial securities and other financial products, consideration should be given to the issue of finality and the technological alignment that will be required with existing legal requirements for finality in payments and securities transactions.

2. Licensing and Legislative Reform

   Many of the advantages of tokenization are associated with the more efficient ways in which tokens can be traded and transferred. For example, tokens can be exchanged (traded) in real-time in a way that removes counterparty risk by ensuring all parts of a transaction is complete (e.g. a cash leg and an asset leg). This process uses computer code to ensure the simultaneous and conditional transfer of digital tokens between accounts, referred to as 'atomic swaps'.

   This capability of digital assets can substantially simplify the financial market infrastructure. For example, it can eliminate the need for a clearinghouse and the associated costs and margin requirements, and collapse down trade and settlement into a single function. These changes can substantially lower the costs of market infrastructure, making trading more efficient in existing markets and enabling new markets.

   As such a comprehensive legislative and licensing review is necessary to ensure the regulatory ecosystem is fit for the purpose of trading tokens. A regulatory and licensing framework that recognized these structural differences in how traditional and tokenized assets are traded will ensure the operation of tokenized markets to their full potential.

Q1.1b.1: What are the possible legal structures that may be employed for the safety, upkeep and maintenance of real-world assets, by third-party service providers, for the benefit of token holders/ investors?

As discussed in Q1.1a.3, the legal structures employed should be rooted in the aforementioned taxonomy and classification of tokens. For example, shares in a company can be represented as digital tokens in multiple forms:

- By changing the underlying registry to a distributed ledger so that only a single (digital) registry exists; or
- By having an intermediary hold the underlying shares and issue 1:1 backed tokens that mirror the records in the original registry (like a digital twin, allowing partial tokenization of an asset class); or

- By having an entity hold a pool of assets against which it issues tokens intended to represent shares in the company.

Existing legal frameworks to ensure proper compliance, ownership, custody, and contractual rights of traditional asset classes in India need to be developed to factor in the nuanced technology and considerations that tokenization brings. This misalignment can lead to disputes over legal treatment. Specifically, the following legislative frameworks need to be considered:

1. Securities Law

   Tokenized RWAs that function similarly to securities may be governed by the IFSCA's Issuance and Listing of Securities Regulations,[6] which regulates financial products and services. If considered securities, such tokenized RWAs would be subject to the same regulatory requirements as traditional securities, such as disclosure, licensing, and adherence to market conduct rules.

2. Property & Ownership Rights

   For tokenized real estate or other tangible assets, existing property laws across different Indian states may remain applicable, depending on the approach to tokenization. These laws cover the transfer of ownership, registration, and property rights. Given the potential of fractional ownership for tokenized RWAs, a key legal challenge is ensuring that the token accurately reflects ownership and that the transfer of tokens aligns with the legal title transfer under property law. For the tokenization of commodities, one potential challenge may be establishing a method to verify the underlying asset held in custody. Mechanisms may also need to be established to allow for the redemption of the token for the physical commodity referenced.

3. Contract Law

   Smart contracts, often used in the tokenization process, are self-executing contracts with the terms of the agreement directly written into code, automatically enforcing and executing the contract when predefined conditions are met. Smart contracts may be subject to general principles of contract law, including enforceability, clear terms, and informed consent from all parties involved.

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[6] See https://ifsca.gov.in/Viewer?Path=Document%2FLegal%2Fifsca-issuance-and-listing-of-securities-regulations-20212007202105430 1.pdf&Title=International%20Financial%20Services%20Centres%20Authority%20%28Issuance%20and%20Listing%20of%20Securities%29%20Regulations%2C%202021&Date=16%2F07%2F2021, *International Financial Services Centres Authority (Issuance and Listing of Securities) Regulations, 2021.*

Q1.1b.2: What are the key obligations and responsibilities that may be imposed on the third-party service providers, providing custody and maintenance services for real-world assets underlying digital tokens?

Ripple notes that this relates to the key obligations and responsibilities for third-party service providers handling the custody and maintenance services for the physical RWAs, rather than their digital token representation, which is addressed separately in Q2.2.3.

Third-party service providers should be required to maintain the usual protections afforded to financial assets under custody. They must provide the legal safeguards, including indemnities and waivers, to ensure the protection of token holders' rights to the underlying RWAs.

Additionally, it is crucial to assess the adequacy of the redemption mechanisms and ensure that any ownership changes or transfers recorded on the blockchain protocol are accurately reflected in the ownership records of the underlying RWAs, where applicable. This is particularly relevant for commodities and other physical assets requiring custody and ownership verification.

Q1.1c.1: What are the possible legal structures that may be employed for ensuring legal recognition to changes in the ownership/ beneficial interest of the real-world asset, as a consequence of successfully executed trades in tokens of the underlying real- world asset?

Any legal structure or reporting requirements will have to be assessed based on the nature of the underlying RWAs, the token structure and the method of trading the token. It is essential that issuers be allowed to benefit from the non-fungible nature of tokens within the bounds of consumer protection.

Often trading of tokens will occur on-chain. A combination of monitoring tools, specifically for public chains, and reporting requirements for specific assets can overcome any issues with legal recognition of the ownership or beneficial interest of the RWA.

Q1.1d.1: What are the possible safeguards/ measures that may be mandated for ensuring that investors/token holders are able to exit their investment (by way of cash settlement) or redeem their tokens (by way of change in ownership of underlying real-world asset), without significant loss of time or detrimental impact to the value of their holdings?

As per our earlier response in Q1.1a.2, the most important safeguard for ensuring the ability of investors to exit their investment is the development of regulated secondary markets. Ensuring that investors can use a regulated

exchange or marketplace for the trading of tokenized assets will allow for efficient settlement and continuous liquidity.

In addition to this, it is important to consider alternative trading mechanisms to the traditional Central Limit Order Book ("CLOB"). Automated Market Makers ("AMM"s) and auction mechanisms can often be better suited to certain assets compared to a CLOB, and can provide alternative means for fair pricing, particularly for less liquid assets. Ensuring such mechanisms are permitted within a regulatory framework will provide an additional safeguard for investors.

In relation to redemption of tokens, we believe that setting out clear rules in relation to ownership and rights will be important to protect investors in the event of any disputes between token holders and the holders of the underlying asset. Stablecoin regulations have offered redemption models which have been tried and tested by some regulators. These could serve as a basis for similar redemption models that are suitable depending on the nature and liquidity of the underlying RWA.

Q1.2.1: What are the possible types of rights that digital tokens may be allowed to represent? What factors may determine whether a given right can be tokenized, effectively traded and ultimately enforced, in a safe and reliable manner?

Ripple respectfully believes that there should be a limitation on the types of rights a digital token may be allowed to represent. Instead, the metric for assessment should be the enforceability of a right on a case by case basis.

Q1.2.2: What are the possible mechanisms for ensuring that the rights represented by digital tokens are transferred in an efficient and reliable manner, as and when the trades in the digital tokens occur?

For rights represented by digital tokens, the most common and effective method of transfer is through smart contracts. This mechanism is programmed to automatically execute the transfer of rights when tokens are traded, ensuring consistency, transparency, and greater efficiency.

Additionally, an inherent feature of DLT is that rights are updated in real-time and that ownership records are both immutable and transparent.

Automated settlement systems can also be applied to ensure that the rights associated with digital tokens are transferred simultaneously with the ownership of the tokens.

Q1.2.3 What are the appropriate disclosures that need to be made to potential investors/ token holders, pertaining to the rights represented by digital tokens?

Ripple believes that disclosures should be made in relation to redemption rights and the rights that a token would grant in relation to ownership, as well as any governance or dividend rights attached to the token.

We also believe that disclosure requirements will differ depending on the underlying RWA and the tokenization structure. Disclosure requirements on the state of a real estate asset stand in contrast to disclosing the potential perishability of a commodity. Disclosure requirements should be adapted on a case by case basis and the issuer should bear responsibility for disclosing any risks associated with a token and consequently what may need to be disclosed to ensure consumer rights are protected.

Q1.2.4 Should the ownership of digital tokens entitle the token holders to rights to participate in the decisions pertaining to the underlying real-world asset (such as administration or sale of the asset, de-tokenization of the asset/ extinguishing of the tokens etc.)? If yes, what are such decisions which are relevant to the token holders, and what mechanisms can be employed to give effect to such decisions?

Ripple agrees that the ownership of a digital token should allow the option for the token holder rights to participate in decisions pertaining to the underlying RWA. However, the extent of these rights depends on the nature of both the underlying RWA and the token itself. For example, if a security is issued as a token with no underlying non-tokenized security, then it should offer the bearer of the tokens the same rights a non-tokenized security would offer.

This decision making or participation can be achieved through existing blockchain optionalities such as consensus mechanisms.

Q1.3.1 Should the ownership form of digital tokens be restricted to registered form, to bearer form, or shall encompass both the types? What are the factors influencing the suitability of a given form of ownership to the digital tokens of a particular type/ given real-world asset class?

Ripple suggests that the ownership form of digital tokens should not be arbitrarily restricted to either registered or bearer form, but instead determined based on a risk-sensitive, activity-based, and technology-neutral approach that aligns with the principle of “same activity, same risk, same regulation”.

The adoption of a technology-neutral framework helps to avoid implicitly favoring any specific ownership model. The regulatory treatment regarding the ownership of digital tokens should ensure parity with their traditional financial counterparts.

A prescriptive, one-size-fits-all requirement that restricts digital tokens to either registered or bearer form could stifle innovation and create unintended financial stability risks.

Instead, ownership structures should be flexible and determined based on risk assessments.

- Payment tokens (e.g., tokenized bank deposits, stablecoins, and CBDCs) may benefit from a hybrid approach, where bearer-like features facilitate efficient transactions, while regulatory oversight ensures financial integrity and compliance, particularly for large-scale institutional use and cross-border settlements.
- Security tokens (e.g., tokenized equities, bonds, real estate, and structured investment products) should generally be considered under a registered form of ownership aligning with existing securities laws, investor protection requirements, and corporate governance frameworks of their real-world counterparts. This ensures compliance, market stability, and enforceability of ownership rights.
- Utility tokens (e.g., tokenized carbon credits, energy credits, and property access tokens) should have flexibility, with ownership form driven by network governance, operational needs, and market efficiency. In cases where they function as non-financial instruments, bearer ownership may be suitable, but registered ownership could apply where regulatory oversight is necessary.

In terms of the factors influencing the suitability of a given form of ownership to the digital tokens, this could include the following:

1. Regulatory and Compliance Considerations

   Ownership structures should align with the associated Anti-Money Laundering/Combating the Financing of Terrorism ("AML/CFT") and Know Your Customer ("KYC") requirements. This is particularly important for payment tokens such as stablecoins and tokenized cash equivalents. Bearer ownership, while enhancing transaction efficiency, raises compliance concerns due to pseudonymity, whereas registered ownership provides stronger oversight. For security tokens (e.g., tokenized equities, bonds, and REITs), registered ownership is generally required to comply with securities laws, investor protection standards, and corporate governance requirements.

2. Risk Management

   Ownership suitability depends on fraud, theft, and systemic risk considerations. Bearer tokens are more vulnerable to loss and hacking, making ownership recovery difficult, whereas registered ownership ensures traceability and legal enforceability, particularly for high-value

tokenized RWAs such as real estate, commodities, and structured investment products. Additionally, broad adoption of bearer tokens in financial markets could introduce instability if ownership records remain untraceable, whereas registered ownership enhances regulatory oversight.

3. Market Efficiency and Innovation

   Bearer ownership enhances liquidity, faster settlements, and cross-border transactions, particularly for highly liquid assets such as tokenized commodities and stablecoins. However, registered ownership, while ensuring compliance, may introduce operational inefficiencies, especially for regulated securities and long-term investment products. A hybrid approach, where programmable compliance is embedded into bearer-like tokens (e.g., whitelisted wallets or smart contract-enforced KYC), could balance efficiency and regulatory needs, particularly for financial applications requiring both flexibility and oversight.

4. Cross-Border Interoperability

   Tokenized RWAs operate in global markets, requiring ownership structures that are recognized across jurisdictions to ensure seamless regulatory compliance. Mutual recognition of registered ownership frameworks can prevent regulatory fragmentation, enhance transferability, and uphold financial stability across markets.

Q1.3.2 What are the different advantages and disadvantages of recognizing a particular form of token ownership? What are risks associated to each of the forms of ownership?

Please see our response to Q1.3.1.

Q1.3.3 What are the kinds of benefits and entitlements, which may need to be disbursed to the investors/ token holders, basis ownership records? What are the advantages and disadvantages of a particular form of ownership in this regard?

The benefits and entitlements that can be programmed into smart contracts for the disbursement to investors or token holders can vary depending on the structure of the token and underlying asset.

Often these benefits are designed to provide the token holder a form of financial return, most commonly through dividend payments but also through mechanisms such as revenue sharing, which is more common in real estate tokenization or through tokens that represent royalties or intellectual property.

Other benefits may include governance and voting rights. This can take various forms but may include providing the investor with a vote (proportionate to the number of tokens held) on decisions regarding the management of the asset or on how the smart control protocol is governed (i.e. on the adoption of new standards, security upgrades, or strategic direction).

An advantage of holding tokens that provide a financial return is that the smart contracts involved are most often programmed to provide a return based solely on asset appreciation. This allows for an automated process of consistent returns based on the performance of the asset, paid in real time as opposed to the T+2 settlement period for traditional securities.

It also allows investors to gain exposure to certain asset classes that may have previously been out of reach. Fractionalized ownership in real estate, for instance, has the potential to open up the market to far greater retail participation, allowing investors access to high-value assets at a lower entry price, enhancing financial inclusion and diversification which is currently not possible in traditional markets.

Advantages in relation to holding governance or voting rights include greater transparency and participation in the asset management process and greater engagement in relation to a company strategy or decision making process. Voting decisions on smart contracts are immutable and cannot be ignored by corporate management in a way that is possible in the traditional securities market.

The disadvantages of such types of ownership can often be seen in less sophisticated or smaller protocols whereby governance rights can be easy to manipulate or hijack by an individual creating several wallet addresses to sway any votes. Smart contracts can also be vulnerable to bugs or manipulation and can be exploited by hackers.

Question Set 2: Evolving appropriate mechanisms for Issuance, Custody, Trading, Clearing and Settlement of Digital Tokens

Q2.1.1 Do you agree that issuance of digital tokens should be a regulated activity? Give reasons in favour of your opinion.

Ripple agrees that the issuance of digital tokens that are referencing RWAs should be a regulated activity. We believe that it is important that certain requirements are set at each stage of the value chain including placement and that the issuer, prior to any issuance, should be required to disclose certain information and provide verification of the reserves and custody measures in place for the underlying asset as well as the mechanisms in place for redemption.

Q2.1.2 What is the nature of interaction/ relationship between the owner of an underlying asset (who wishes to engage an Issuer for issuance of tokens against a real-world asset) and the Issuer? Is there a requirement to regulate this relationship?

The regulation of the issuance should address this relationship and it could be managed similar to a trust with an actual owner and a beneficial owner. Moreover the rights associated with a token ought to be clarified and appropriate corresponding disclosures should be made.

Q2.1.3 What are the appropriate regulatory requirements that may be imposed on the Issuer of digital tokens, in order to ensure that genuine assets are tokenized by legitimate owners of the underlying real-world asset?

As per our answer to Q2.1.1, Ripple believes that performing the activity of issuance of digital tokens should require the disclosure of certain information, both at a public level and to the regulatory authority.

To ensure the provenance of a token and the legitimacy of the owners of the underlying asset, we believe that issuers should be required to provide evidence of ownership of the underlying asset to the regulatory authority. This may be in the form of legal titles, ownership deeds, or custodial contracts.

Issuers should also be required to provide evidence that due diligence and valuation has been carried out on the underlying asset. This may take different forms depending on the type of RWA being tokenized such as a financial audit or a certified property valuation.

The structure of the token and the rights that it provides should also be clearly set out as well as the mechanism in place for redemption.

Regulatory authorities may also gain further comfort by requiring that underlying assets, where financial securities, are held by a licensed credit institution. For physical assets, requirements could be in place to ensure that the asset is held by a licensed custodian. Requirements relating to indemnity insurance and regular ongoing audits may also be effective in ensuring investor protection.

Q2.2.1 Do you agree that provision of custody services for digital tokens should be a regulated activity? Give reasons in favour of your opinion.

We agree with the IFSCA's view that custody services for digital tokens should be regulated.

We believe that if a service provider is charging for the service of keeping an individual's or company's assets safe, it is essential that certain controls are in place to avoid these assets being stolen, co-mingled with other assets, or otherwise misused. Effective custody measures are a key pillar of trust in all financial service industries and it is important to ensure industry best practices are being maintained.

It is important to note that entities could also opt into a self custody model. In that event where custody is not offered as a service but merely as a technology solution it would be burdensome to regulate the custody technology provider as that does not serve any purpose of consumer protection or risk prevention.

Q2.2.2 Should custody be restricted to self-custody, to regulated custody service providers, or be permitted in both formats? What are the risks associated with each of these forms of custody?

Ripple believes that firms should be permitted to custody in both formats - self-custody and/or using a third-party service provider. Each format carries its own specific benefits and risks and will be more suitable depending on the business model or intentions of the investor or beneficial owner. In line with the principle of "same activity, same risk, same regulation", we believe that the IFSCA should remain neutral in this regard and that there should be a focus on adopting international best practices and standards.

To effectively implement this approach, it is essential to access and address the risk associated with different custody technologies and formats, maintaining a technological-agnostic framework while balancing security with operational efficiency. In relation to the associated risks, self-custody relies on the user maintaining access to their private keys and therefore if these keys are lost, the assets will likely be permanently lost. This contrasts with third party custody providers whereby key recovery mechanisms are usually in place.

However, self-custody also gives investors direct control over their assets , and eliminates the risk of a custodian's insolvency or losses due to a cyber attack on a custodian provider. As such, custody technology solutions should provide robust methods for key recovery in disaster scenarios where the key beecomes unavailable or inaccessible.

Q2.2.3 What are the appropriate regulatory requirements that may be imposed on the custody service provider?

Ripple believes that custody service providers are a cornerstone of the tokenized RWA ecosystem, responsible for ensuring the safekeeping, integrity, and security of both digital tokens and their underlying assets. Given the unique characteristics of tokenized RWAs and the reliance on DLT, regulatory frameworks should impose rigorous standards on custody providers. These standards should align with global best practices while ensuring that digital asset custody maintains the same level of security, governance, and risk management as traditional bank-grade custody.

1. Licensing Requirements

   At its core, we recommend that custody service providers should be a licensed and regulated activity, ensuring that only financially sound and operationally competent entities provide custody services. Licensing requirements should include minimum capital requirements, governance standards, and operational resilience frameworks. Regulatory authorities should differentiate between custodians serving institutional clients and those serving retail investors, with corresponding risk-based compliance obligations.

2. Asset Segregation

   Custodians must maintain strict segregation of client assets from their own balance sheets to protect investors from insolvency risks, fraud, or operational failures. Asset segregation should apply to both on-chain (digital token) and off-chain (RWA backing the token) custody to ensure that investors retain full ownership rights. Regulatory frameworks should also establish independent verification mechanisms to validate that assets backing tokenized securities are securely held and auditable.

3. Risk Management Frameworks

   A comprehensive risk management framework is essential for digital asset custody, ensuring the security, stability, and integrity of custodial services. Given the distinct risks associated with digital assets, the regulatory approach should be technology-agnostic and outcome-based, focusing on three key areas: cybersecurity, investor protection, and financial stability.

4. Cybersecurity

   Custodians must implement robust security measures to protect against unauthorized access and cyber threats. A risk-based approach should be adopted, allowing for technological flexibility while maintaining strong security standards. Some notable security measures include multi-factor authentication ("MFA"), cold storage solutions, hardware security modules ("HSM"s), multi-party computation ("MPC"), transaction governance and real-time transaction monitoring.

   Given the increasing sophistication of cyberattacks, IFSCA can consider enforcing penetration testing, incident response planning, and cybersecurity audits to enhance resilience. As noted in Q1.1b.2, different custody models - whether self-custody, third-party custody, or hybrid approaches - introduce unique risks such as private key management vulnerabilities, counterparty risk, and exposure to custodial failures. A strong custody governance framework must be established to mitigate these risks, incorporating real-time monitoring, independent security assessments, and regulatory oversight to maintain high standards of security and operational resilience.

   Furthermore, the technology and industry best practices for digital asset custody are constantly evolving, necessitating a flexible and adaptive regulatory framework. New advancements, such as decentralized custody models, programmable security protocols, and artificial intelligence-driven threat detection, are reshaping how custody risks are managed. Regulators must ensure that security standards evolve alongside these innovations to remain effective.

5. Investor Protection

   A well-regulated custody framework must prioritize investor protection, ensuring that clients' assets are safeguarded from loss, fraud, and mismanagement. Regulatory audits should be conducted periodically to verify compliance with licensing conditions, security protocols, and investor protection measures.

   A key safeguard is the segregation of client assets from custodians' balance sheets, ensuring that investors' funds remain protected in the event of custodian insolvency or legal disputes. Custodians should also be required to maintain adequate insurance coverage to compensate investors for asset loss due to cybersecurity breaches, operational failures, or fraud.

   Additionally, AML/CFT compliance plays a crucial role in investor protection. Custodians must adhere to enhanced customer due diligence, ongoing transaction monitoring, and suspicious activity reporting. Compliance with the Financial Action Task Force ("FATF")

Travel Rule[7] should be mandated, ensuring transparency by requiring custodians to share sender and receiver information for digital asset transactions above a specified threshold.

Given the cross-border nature of tokenized RWAs, regulatory coordination is necessary to align AML/CFT standards globally, preventing regulatory arbitrage and ensuring market integrity.

Investor education should also be considered as an integral part of investor protection efforts. As self-custody solutions gain traction, investors must be aware of the risks associated with private key management, including the potential for irreversible asset loss. Regulators should encourage industry players to promote best practices in secure digital asset storage, ensuring that investors are adequately informed.

6. Financial Stability

   As digital assets continue to integrate with traditional financial systems, financial stability considerations must be incorporated into custody regulations. Custodians should be required to maintain sufficient liquidity reserves to cover potential operational losses, security incidents, or investor claims. Minimum liquidity thresholds should be aligned with traditional financial sector requirements for safekeeping institutions to ensure market stability.

   Regulators should also mandate that custodians establish business continuity and disaster recovery plans, ensuring uninterrupted access to assets even in the event of technological failures or security breaches. Additionally, large-scale custodians should be subject to periodic stress testing to evaluate their ability to withstand market shocks, cyber incidents, or systemic risks.

   Given the global nature of digital asset markets, regulatory cooperation between jurisdictions is essential to ensure market stability and resilience. Custody service providers operating across multiple jurisdictions should be required to adhere to internationally recognized risk management and financial stability standards to prevent regulatory inconsistencies and systemic vulnerabilities.

The importance of robust custody regulatory requirements is also at the forefront of other jurisdictions such as the United Arab Emirates and Singapore, where the emphasis lies on stringent licensing, cybersecurity resilience, and investor protection measures to ensure robust custody standards.

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[7] See https://www.fatf-gafi.org/en/publications/Fatfrecommendations/targeted-update-virtual-assets-vasps-2023.html, *Virtual Assets: Targeted Update on Implementation of the FATF Standards on Virtual Assets and Virtual Asset Service Providers.*

- Virtual Assets Regulatory Authority ("VARA"): VARA has established custody requirements for regulated virtual asset service providers (VASP)[8] operating in Dubai, including custody service providers through its rulebook. These requirements allow VASPs to implement best practice technology and virtual assets management processes, as long as they are fit for purpose and withstand risk assessments. These requirements address the control and segregation of a client's virtual assets in addition to the management of cryptographic keys and virtual asset wallets. VARA expects VASPs to implement clear technology governance frameworks. This includes a requirement for controls in case of collusion and attacks.
- Monetary Authority of Singapore ("MAS"): MAS has established a comprehensive regulatory framework under the Payment Services Act and Securities and Futures Act, requiring custodians to implement robust AML/CFT controls, strong cybersecurity safeguards, and asset segregation policies[9]. MAS also mandates clear governance structures, operational resilience frameworks, and risk-based capital requirements, ensuring that digital asset custody providers align with the highest financial sector standards.

Q2.3.1 What comprises the market infrastructure for a digital asset market? Does it differ from the market infrastructure in the traditional securities market? If yes, please elaborate.

As mentioned in Q1.1a.2, building a foundational market infrastructure and secondary market liquidity is one of the key areas in which RWA tokenization can redefine how assets are managed, traded, and settled, therefore fostering a more efficient and transparent financial ecosystem.

To further elaborate on this point, we strongly believe that a comprehensive ecosystem is required to further develop the RWA tokenization market, with key players such as:

1. Regulated Digital Asset Marketplaces

   Digital asset exchanges, decentralized trading platforms, and regulated marketplaces facilitate the buying and selling of tokenized RWAs. These platforms may operate under centralized ("CEX") or decentralized ("DEX") models, with the latter relying on smart contracts for trade execution.

[8] See https://rulebooks.vara.ae/rulebook/rulebooks, *VARA Regulatory Framework Rulebook.*
[9] See https://www.mas.gov.sg/regulation/guidelines/ps-g03-guidelines-on-consumer-protection-measures-by-dpt-service-providers, *Guidelines on Consumer Protection Measures by DPT Service Providers [PS-G03] (revised on 19 September 2024).*

2. Digital Asset Custodians and Wallet Providers

   Secure custody solutions, including regulated custodians, HSMs, and MPC wallets, ensure the safekeeping of tokenized assets. Unlike traditional securities, tokenized RWAs may be held on-chain or in hybrid custody models.

3. Liquidity Providers and Market Makers

   Tokenized RWAs require active market makers and liquidity providers to maintain price stability and trading efficiency, ensuring deep order books and reducing slippage.

4. Oracles and Data Providers

   RWA tokenization depends on trusted oracles to feed off-chain data (such as asset valuations, interest rates, and market prices) into smart contracts for execution and transparency.

5. Regulatory and Compliance Infrastructure

   Identity verification, KYC/AML frameworks, transaction monitoring, and compliance tools ensure regulatory adherence while balancing decentralization.

6. Insurance and Risk Mitigation Services

   Unlike traditional markets, insurance solutions for digital assets must account for risks such as custodial breaches, smart contract failures, and cyber threats.

To fully realize the potential of RWA tokenization, the IFSCA should focus on developing a foundational market infrastructure and secondary market liquidity. This includes establishing a comprehensive ecosystem that integrates regulated trading platforms, custodians, liquidity providers, and compliance frameworks.

Ensuring interoperability between digital asset platforms and traditional financial institutions will be key to fostering institutional adoption. Additionally, encouraging liquidity incentives through the participation of institutional investors, market makers, and automated liquidity providers will help create a vibrant secondary market for tokenized RWAs.

Q2.3.2 What are the key functions of market infrastructure in a digital asset market? Does it differ from the key functions of market infrastructure in the traditional securities market? If yes, please elaborate.

Market infrastructure for a digital asset market will broadly align with that of a traditional securities market infrastructure at each step in the value chain (i.e.

placement, trading, clearing, and settlement) but with some key differences at a technological level.

At the placement stage, platforms will need to exist in the market that allow for the tokenization and distribution of a real world asset. This will differ from traditional market infrastructure, where the issuance would be conducted by intermediaries such as investment banks before being listed on a stock exchange for secondary market trading. Instead smart contracts are utilized to issue the token directly via a blockchain.

At the trading stage, where traditional market infrastructure uses centralized stock exchanges, digital asset markets, in addition to relying on centralized exchanges, may also utilize decentralized exchanges allowing peer-to-peer trading without intermediaries. The availability of secondary markets in this regard, as per our answer to Q1.1a.2, will therefore be essential to the success of any tokenization regulatory framework. Infrastructure at this stage in the value chain will also need to be able to provide for AML/KYC controls when onboarding and monitoring clients, which need to consider blockchain analytics and wallet address monitoring as well as on-chain verification in areas such as Source of Wealth/Source of Funds.

At the clearing and settlement stage, where traditional market infrastructure will rely on clearing houses and settle in funds, usually on a cycle of T+2 or longer, digital asset market infrastructure will rely on smart contracts offering instant settlement. The benefit of such infrastructure is that smart contracts can simplify and enforce agreements, reducing manual intervention and the risk of human error. The digital asset market will also settle on-chain rather than in funds, meaning that infrastructure will need to exist that provides for a sufficiently stable digital asset class that can be used to settle trades (i.e. stablecoins or a CBDC). As per our answer to Q1.1a.2, it is vital therefore, that a digital asset ecosystem exists within a jurisdiction prior to the introduction of a tokenization framework, both in terms of exchanges that can be utilized in the secondary markets and virtual assets that are available and utilized as a means of settlement.

Asset tokenization drives market efficiency by eliminating delays in settlement and reconciliation often caused by intermediaries in traditional markets, thereby increasing transaction volume. It also enhances liquidity through fractional ownership and secondary markets, therefore democratizing access and attracting a broader investor base. Additionally, asset tokenization could increase the utility of assets for investors. As a relevant example, illiquid assets are typically not accepted as collateral, or require steep haircuts in order to be accepted, as the value is subjective and opaque. However, the ownership of tokenized units where there is an active market and liquidity exists removes this barrier, and will allow new opportunities for the value of illiquid assets to be unlocked.

Q2.3.3 What are the key regulatory requirements that need to be imposed on market infrastructure institutions in a digital token market? Does it differ from the regulatory requirements imposed on market infrastructure institutions in the traditional securities?

In relation to key regulatory requirements for market infrastructure, we believe the following should be considered by the IFSCA in so far that it differs from infrastructure in the traditional securities market:

- For smart contracts used on the blockchain protocol for the purposes of issuance, trading, and settlement, requirements should be in place for independent security audits to be undertaken. Additionally, we believe requirements should be in place in relation to ongoing monitoring and vulnerability assessments, particularly in relation to assessing the robustness of the underlying protocol.
- Exchanges that make up the secondary market infrastructure should be fully regulated (i.e. a licensing regime consisting of prudential, conduct, and AML/CFT requirements).
- For the continuous issuance and redemption of stablecoins used as a form of settlement, we believe that international best practices should be followed in relation to regular audits and monthly attestations of the reserve assets in place, in addition to certain restrictions on the types of investment permitted using reserves. Additionally, we believe that it is important that there is legal clarity on redemption rights, whether this is disclosed by the issuer or published in legislation by the IFSCA.

Q2.3.4 What are the various market participants involved in a digital asset market? Are they different from the market participants in the traditional securities market? If yes, please elaborate.

Market participation in the digital token market will differ to that of the traditional securities market in a number of areas.

Firstly, there may in some cases be an important need to differentiate between the underlying asset holder and the token holder given that tokenized real world assets will be freely traded while representing the underlying asset, but may only provide economic rights rather than legal title. The key functions of the underlying asset holder therefore will often centre on custodianship, management and maintenance of the asset, and providing the necessary mechanism to allow for the redemption of tokens for real-world ownership. This role will ensure that the token is not just a digital construct but rather backed by verified assets. The key functions of the token holder on the other hand, will depend largely on the rights conferred by the token. This could involve

governance or decision making powers but could often simply be to seek financial returns or to hold long term exposure.

In relation to the function of the issuer, there are many overlapping functions consistent in both the digital token market and the traditional securities market, such as the defining of rights attached to the asset and the regulatory obligation to carry out AML/KYC checks. The main difference occurs in the minting and distribution of tokens where the issuer is responsible for sending the tokens to blockchain wallets via smart contracts. This differs to traditional securities markets where the issuer will use centralized entities such as investment banks or through an initial public offering.

At the settlement stage of the transaction, the market participants will include entities that have issued the asset used for settlement. This could include stablecoin issuers or central banks. For stablecoin issuers, the key functions will include ensuring liquidity and availability of assets for on-chain transactions as well as the maintenance of reserves to ensure trust in the settlement asset. For central banks, one key function may be to facilitate the interoperability between their own CBDC and one from another jurisdiction to ensure cross-border trading is possible.

DLT market operators are also key market participants that can have an important function in the digital token market. Their main function is to operate a marketplace for tokenized RWAs allowing issuers to list their assets and for investors to trade. They also play an important role in the matching of buy and sell orders, whether this is through the operation of an order book or through the provision of an automated market maker. These are similar functions to a traditional market operator, the difference being less reliance on intermediaries to perform such functions.

Q2.3.5 What are the key functions of market participants in a digital token market for real world assets? Are they different from the functions of respective market participants in the traditional securities market? If yes, please elaborate.

Please see our response to Q2.3.4.

Q2.3.6 What are the key regulatory requirements that need to be imposed on market participants in a digital token market for real-world assets? Are they different from the regulatory requirements imposed on respective market participants in the traditional securities market? If yes, please elaborate.

Similar to our response in Q2.3.3, whilst much of the existing framework for traditional securities will be applicable to market participants in the digital token market for RWAs, we believe that a substantial reform of the licenses

applicable to payment systems, capital market intermediaries, and clearing corporations will be required to realize the full potential of tokenized RWA markets and to factor in the significant differences and efficiencies in DLT-based systems compared to traditional clearing and settlement.

In the interim, we believe that an effective solution would be applying a licensing exemption to the relevant licenses in order for firms looking to operate in this area to do so without the risk of non-compliance.

In the medium term, to overcome these challenges, we propose the development of a regulatory sandbox for tokenized RWA markets. We foresee such mechanisms playing a pivotal role in building the understanding and capabilities necessary for tokenising RWAs.

Any sandbox developments should look to overseas efforts such as the European Union ("EU"s) DLT Regime[10], the United Kingdom ("UK"s) Digital Securities Sandbox ("DSS")[11], and Singapore's Project Guardian[12] where lessons can be learned from these.

In the EU, this regulatory sandbox has had little to no engagement from industry for a number of reasons, primarily because of the low thresholds that have been set for trading, the lack of available digital money arrangements such as fiat-backed stablecoins, and the requirement to establish a central securities depository, which has effectively prohibited credit institutions and investment firms from participating.

Over in the UK, the DSS has focused on fostering innovation by providing a controlled environment for testing DLT solutions within financial market infrastructures ("FMI"). By allowing FMIs to trial new tokenized business models under a modified regulatory framework and clearly outlining the progression stages, it ensures a structured and gradual development while minimising systemic risk.

Project Guardian, initiated by the Monetary Authority of Singapore ("MAS"), is a leading example of how regulatory sandboxes can drive the development of tokenization. This collaborative initiative between the MAS and the industry allows financial institutions to experiment with RWA tokenization, thereby enhancing market liquidity and efficiency. By bringing together key players from the finance and technology sectors, Project Guardian explores the use of DLT in the tokenization of financial assets, such as digital bonds and other securities.

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[10] See https://www.esma.europa.eu/esmas-activities/digital-finance-and-innovation/dlt-pilot-regime, *DLT Pilot Regime.*

[11]See https://www.bankofengland.co.uk/financial-stability/digital-securities-sandbox, *Digital Securities Sandbox (DSS).*

[12] See https://www.mas.gov.sg/schemes-and-initiatives/project-guardian, *Project Guardian.*

There are currently twenty-four industry partners exploring thirty-one use cases across all asset classes.[13] Regulators from France, Germany, Japan, Switzerland, and the UK have also joined the Policymaker Group, which seeks to deepen cross-border collaboration between policymakers and advance discussions on standardization and interoperability under Project Guardian.

Q2.3.7 What are the various factors which determine the level of public trust and investor confidence in a market?

In addition to a clear legal framework, public trust and investor confidence can be fostered in various ways specific to the digital asset market.

By establishing strong regulatory requirements in relation to the security of smart contracts and the robustness of underlying blockchain protocols, investors will gain confidence in the ability of the infrastructure to handle the necessary transactions.

Secondary markets can also be a key source of confidence, providing adequate liquidity and price discovery to ensure that tokenized assets can be traded freely and without delay.

Investor protection in relation to finality and settlement will also be a key area in fostering trust. Currently there are legal uncertainties in tokenized trading in relation to finality, where one party in the transaction defaults or becomes insolvent. By issuing clear regulatory and legal requirements for the use of blockchain protocols in tokenized trading, such legal certainties can provide assurance and trust in the underlying technology.

Q2.3.8 Should market infrastructure be categorised into Distributed Ledger Technology (DLT) based and non-DLT based categories? Is there any other manner of categorising the market infrastructure for the purposes of differentiated regulatory treatment? If yes, please elaborate on the same.

Ripple believes that market infrastructure should not be categorized in a binary manner as either DLT based and non-DLT, given the technological differences that will be inherent in each system.

Instead, we suggest that the IFSCA adopt a functional and risk-based approach, evaluating the market infrastructure on a case-by-case basis by considering factors such as system architecture, operational risks, regulatory compliance, and interoperability with other existing systems. Rather than relying on a broad classification, an effective classification model would be based on the functional role of the infrastructure, such as payments and settlement systems, trading venues and custody solutions. This approach

[13] See https://www.mas.gov.sg/-/media/mas/news/media-releases/2024/annex-a--list-of-participants-in-project-guardian-industry-group.pdf, *Annex A – List of Project Guardian Members.*

allows for a tailored regulatory framework that aligns with the specific risks and characteristics of each system.

Q2.3.9 Do you agree with the view that Distributed Ledger Technology (DLT) based market infrastructure should be accorded differentiated regulatory treatment as compared to non-DLT based market infrastructure? What are relevant reasons for such a differentiation?

As per our answer to Q.2.3.8, we do not believe that a single binary classification should be used to distinguish market infrastructure and therefore regulatory treatment should not be applied differently based on such a classification.

Q2.3.10 What are the characteristics/ features of Distributed Ledger Technology (DLT), which warrant a differentiated regulatory treatment of market infrastructure? What are the associated limitations and risks that need to be addressed in this regard?

DLT introduces fundamental changes to market infrastructure, warranting differentiated regulatory treatment due to its unique characteristics and the risks it presents. Unlike traditional centralized financial systems, DLT operates through distributed networks, enhancing efficiency, security, transparency, and accessibility while also introducing new regulatory, financial, and operational risks.

The key characteristics of DLT that necessitate differentiated regulatory treatment include:

1. Decentralization

   DLT removes the need for a central authority by distributing data and validation processes across multiple nodes. This reduces the risk of a single point of failure, increasing resilience and security in market infrastructure. However, decentralization poses challenges for regulatory oversight as there is often no single entity accountable for compliance, requiring alternative governance models and supervisory mechanisms.

2. Immutability

   Once transactions are recorded on a DLT, they cannot be altered or erased. This provides strong data integrity and auditability, reducing fraud and ensuring regulatory compliance. However, irreversibility presents challenges in cases of fraud, operational errors, or dispute resolution, requiring frameworks that allow for rectifications without compromising security.

3. Transparency

The level of transparency varies based on whether the DLT is permissioned or permissionless.

- Permissioned DLTs allow only designated participants to validate transactions, facilitating regulatory oversight, market surveillance, and compliance.
- Permissionless DLTs, on the other hand, offer greater openness and decentralization, but could introduce AML/CFT and data privacy risks, as transactions can be conducted pseudonymously without identity verification.

Regulators need to differentiate their approach to transparency requirements based on the nature of the DLT network.

4. Consensus Mechanisms

   The method of validating transactions (e.g., Proof of Stake, Proof of Work, Byzantine Fault Tolerance) affects the efficiency, security, and sustainability of market infrastructure. Some consensus mechanisms, such as Proof of Work, require significant computational resources, raising environmental and cost concerns, while others, such as Proof of Stake, may introduce governance risks and concentration of power among token holders. Regulatory frameworks should consider risk-adjusted approaches to different consensus models.

5. Smart Contract Automation

   Smart contracts enable the automated execution of transactions, settlements, and compliance processes, reducing reliance on intermediaries and increasing operational efficiency. However, they introduce new risks, including coding errors, vulnerabilities, and governance challenges, as there is no central authority to intervene in case of malfunction. Regulatory standards for smart contract security audits, risk assessments, and enforceability will be crucial.

While DLT enhances market infrastructure, it also presents several risks that require regulatory adaptation, including:

1. Scalability and Interoperability Challenges

   Traditional financial markets are designed to handle high transaction volumes efficiently, whereas many DLT networks face throughput limitations, congestion issues, and high latency. This can hinder the ability of DLT-based systems to process transactions at the speed and scale required for mainstream financial applications. Additionally, interoperability between DLT-based and traditional financial systems remains a concern, as existing financial infrastructure relies on centralized systems that may not seamlessly integrate with decentralized networks. Developing interoperability standards and hybrid solutions will

be crucial to ensuring smooth coordination between traditional and blockchain-based systems.

2. AML/CFT compliance risks

   The pseudonymous nature of permissionless DLTs complicates AML/CFT compliance, as transactions can be conducted without the direct oversight of regulated financial institutions. Unlike traditional banking systems, where KYC and transaction monitoring frameworks are well established, blockchain transactions require new approaches to on-chain identity verification, forensic analysis, and regulatory reporting. To mitigate these risks, regulators may need to develop blockchain-based identity solutions and enforce compliance measures tailored to both permissioned and permissionless networks.

3. Implications of Real-Time Settlement

   DLT's ability to facilitate real-time settlement and 24/7 market operations also presents financial stability risks to the market infrastructure. Instantaneous transactions eliminate traditional settlement windows, reducing counterparty risk but also increasing liquidity demands. This can create liquidity pressures and volatility risks, particularly for low-demand assets, where market fluctuations may become more pronounced without the natural pauses of traditional trading cycles. Regulators may need to introduce liquidity buffers, circuit breakers, or risk management protocols to stabilize market movements and protect investors from extreme volatility in continuously operating DLT-based markets.

4. Legal and Regulatory Uncertainty

   Most existing financial regulations are designed for centralized market structures, where intermediaries such as banks, clearinghouses, and regulators play defined roles. Applying traditional securities laws, consumer protection regulations, and dispute resolution mechanisms to decentralized and automated financial systems presents significant challenges. Additionally, the lack of clear regulatory definitions for digital assets, smart contracts, and decentralized financial applications has created uncertainty for market participants. To ensure market integrity and investor protection, regulators must develop comprehensive guidelines and legal frameworks that align with the unique nature of DLT while maintaining the stability and security of financial markets.

Q2.3.11a.1 In the case of Distributed Ledger Technology (DLT) based market infrastructure, is there a need to redefine the processes of clearing and settlement? If yes, please elaborate.

As per our answer to Q2.3.10, DLT has the potential to substantially simplify the financial market infrastructure. For example, it can eliminate the need for a clearing house and the associated costs and margin requirements, and collapse down trade and settlement into a single function. These changes can substantially lower the costs of market infrastructure, making trading more efficient in existing markets and enabling new markets. It can unlock the capital tied up in the clearing process while also reducing systemic risk in markets by eliminating the build-up of counterparty risk in central entities like clearing houses.

As a result of such innovations, we believe regulatory authorities will need to consider the key role that clearing houses currently play in managing counterparty risk and whether, in a tokenized trading environment, there is any need for such structures given peer-to-peer markets can trade without a central clearing authority. As some clearing houses look to adapt to this change and move towards a more DLT Market Operator type role,[14] we believe that there will be a need to redefine the regulatory approach to such activity.

We believe the processes defining settlement will certainly require redefining, given the key obstacles and potential of on-chain settlement already discussed in our answer to Q1.1A.2.

Q2.3.11a.2 What are the inherent risks and limitations of automatic clearing and settlement of trades in a Distributed Ledger Technology (DLT) based market infrastructure?

As per our previous answers in Q1.1A.2 and Q2.3.10, the main challenges relating to automatic clearing and settlement on-chain centre on the ways in which settlement can be made in an effective and efficient manner.

Whether this is completed through a CBDC initiative such as the Digital Rupee or through the use of stablecoins, both methods have their advantages and limitations. For instance, CBDCs will likely be suited to local transactions rather than cross-border international transactions and may, in many cases, be limited only to wholesale market participants. Licensed stablecoins however, will be better suited for cross border trading and retail participation but may carry a different risk profile in relation to credit and liquidity risks which central banks and regulatory authorities will need to gain comfort with.

As per our response to Q.2.3.10, other settlement risks include the immutable nature of on-chain settlement and the fact that transactions can not be reversed, and the liquidity constraints resulting from instant settlement.

Q2.3.11a.3 What are the major hurdles to ensuring legal and regulatory

[14] See https://www.deutsche-boerse.com/dbg-en/markets-services/ps-technology/ps-7-market-technology/ps-d7, *Deutsche Bourse's D7 DLT initiative*.

certainty to transactions effected by smart contracts on Distributed Ledger Technology (DLT) based market infrastructure?

As per our answer to Q4.a.1, the legal concept of settlement finality and how this translates to DLT based infrastructure is a hurdle to ensuring certainty. Such provisions to ensure that transactions are not disrupted by the insolvency of a participant need to be written into the smart contract to guarantee that transaction orders are finally settled.

Other concerns may relate to data privacy, given that DLT transactions are by nature transparent and the fact that smart contracts may store sensitive data on-chain as a result. While DLT transactions are pseudonymous, analytic tools have the ability to de-anonymize users by linking addresses to real-world identities. The development and acceptance of concepts such as zero-knowledge proofs may be able to alleviate some of these concerns.

Q2.3.11b.1 In the case of Distributed Ledger Technology (DLT) based market infrastructure, is there a need to redefine the processes of issuance and custody? If yes, please elaborate.

Ripple believes that the processes of issuance and custody will need to be redefined to accommodate DLT based market infrastructure.

For on-chain issuance, it may be possible for smart contracts to automate a number of processes (e.g. KYC/AML compliance) that would require manual intervention under traditional market infrastructure. Additionally, issuers using DLT will be able to tokenize assets directly on-chain rather than using intermediaries such as central securities depositories typical in the traditional securities market.

For custody, while many underlying assets will be custodied in a traditional manner (i.e. physical commodities), tokenized assets will follow an entirely different process and will depend on the storage and protection of private keys. Alternative custodial models such as MPC will also be utilized to offer advanced encryption of such private keys. Any regulation governing these concepts and alternative custody methods will need to account for these differences.

Q2.3.11b.2 What are the inherent risks and limitations of issuance and custody of digital tokens on a Distributed Ledger Technology (DLT) based market infrastructure?

Inherent risks in the custody of digital tokens relate to the ability to self-custody and the fact that private keys vital to the unlocking and operation of self-hosted wallets can be lost or stolen, leading to the irreversible loss of funds.

In relation to issuance of digital tokens, the primary risk lies with the current regulatory environment globally, and the uncertainty surrounding how such tokens should be treated from a regulatory perspective.

Q2.3.11c.1 What are the various market participants involved in a Distributed Ledger Technology (DLT) based digital token market for real-world assets? Are they different from the market participants in a non-DLT based digital token market? If yes, please elaborate.

Market participants could include the following:

1. Issuer of tokenized RWAs

   Such participants differ from non-DLT based markets where tokens will be issued directly onto the blockchain without the use of intermediaries, in contrast with non-DLT based markets.

2. Operator of the blockchain protocol

   This participant will ensure the functioning and security of the blockchain network as well as defining any rules or consensus mechanisms. This will differ from non-DLT based markets whereby centralized databases are used and operated by a central securities depository.

3. Investor seeking to buy or sell tokenized RWAs

   This participant will differ from an investor in non-DLT based markets as they will need to have access to both a means of custodying digital tokens (i.e. through self hosted wallets or digital token custodian providers) or and a means of settling transactions on-chain (i.e. holders of CBDCs or stablecoins).

4. Settlement authority

   This will either be the central bank issuing its own digitally created assets (i.e., CBDCs) or a stablecoin issuer who is able to provide redemption facilities for any stablecoins issued.

5. Secondary market participants such as exchanges that will list and trade the tokenized RWA

   This will differ from non-DLT based exchange in the areas of order execution, given that DLT based exchanges will trade and settle on-chain, and the fact that as a result of this, they will be able to provide instant settlement as opposed to the T+2 timeframe of non-DLT based exchanges.

Q2.3.11c.2 What are the key functions of market participants involved in a

Distributed Ledger Technology (DLT) based digital token market for real-world assets? Are they different from the functions of respective market participants in a non-DLT based digital token market? If yes, please elaborate.

Please see our response to Q2.3.11c.1.

Question 2.3.11c.3 What are the key regulatory requirements that need to be imposed on market participants in a Distributed Ledger Technology (DLT) based digital token market for real-world assets? Are they different from the regulatory requirements imposed on respective market participants in a non-DLT based digital token market? If yes, please elaborate.

While there will be many overlapping requirements for both market participants in a DLT based digital token market and those in a non-DLT based market, there will be some key differences.

Investor protection requirements may differ, with a specific focus on smart contract risks and private key security measures. Additionally, market surveillance methods will differ given the need to consider risks of on-chain manipulation.

Q2.3.11d.1 What are the characteristics of a Distributed Ledger that have a significant bearing on their suitability for market infrastructure?

Please see our response to Q2.3.10.

Q2.3.11d.2 Do you agree with the view that certain characteristics of Distributed Ledgers impact the form and magnitude of risks they pose, when employed in a digital token market? What are the relevant characteristics of Distributed Ledgers and consideration?

Please see our response to Q2.3.10.

Additionally, we believe that the risks that should be the focus of any regulatory regime are of the same nature across the market, (i.e. financial, legal, and operational risks). However, certain characteristics of DLT can influence the form and magnitude of these risks, necessitating a more nuanced regulatory approach.

We acknowledge that some DLTs may have different characteristics that, in some cases, may require consideration of some of these risk categories more than others. One instance would be whether a DLT is permissioned or permissionless should be considered differently to permissioned blockchains in the areas of data privacy and AML. As mentioned in our response to Q2.3.10, permissionless blockchains introduce heightened risks in areas such as

AML/CFT compliance requirements, as transactions occur without direct oversight from intermediaries. On the other hand, permissioned blockchains also offer greater control and regulatory compliance by restricting participation with verified entities, reducing illicit activity risks but potentially limiting decentralization and transparency.

Another key consideration is the consensus mechanism employed by the DLT, as it impacts both settlement risks and environmental sustainability. Mechanisms such as Proof of Work provide strong security guarantees but come with high energy consumption and longer transaction finality times, which may be less suitable for financial market infrastructure. Proof of Stake and other alternative consensus models improve scalability and transaction efficiency, but their reliance on token-based validation could introduce new economic and governance risks related to validator incentives and network centralization.

In addition to these concerns, immutability and transparency also shape risk exposure. While immutability ensures data integrity and auditability, it also raises concerns around error correction and dispute resolution, as transactions cannot be easily reversed. Regulatory frameworks may need to consider off-chain mechanisms or governance structures to handle such cases without compromising the security benefits of immutability. Transparency, similarly, can improve market integrity and reduce information asymmetry, but for institutions dealing with sensitive financial data, confidentiality concerns must be addressed, particularly in public blockchain environments.

Q2.3.11d.3 What are the possible regulatory requirements that may be considered for addressing the risks emanating from the use of different types of Distributed Ledgers in a digital token market?

Ripple believes that a regulatory approach to the tokenization of RWAs should be approached as technologically agnostic and should not differentiate significantly depending on the use of different types of distributed ledgers.

Such an approach will ensure that requirements are focused on functional and risk based principles and that there is consistency across the market.

We believe that core risks such as investor protection, market integrity, AML, and custody will remain the same regardless of the type of distributed ledger. Additionally, by adopting a technologically neutral approach, regulations will be better placed to stand the test of time rather than requiring constant revision as technology adapts and evolves.

Question Set 3: Evolving an appropriate Risk Management Framework for Digital Tokens

Q3.a.1 What are the key governance risks in market infrastructure institutions and market participants in a digital token market for real-world assets? Are they different from the governance risks in respective institutions in the traditional securities market? If yes, please elaborate.

One key element in the governance of market infrastructure in a digital token market is the custody of the underlying asset. As already mentioned in Q1.1b.2, any regulatory regime will need to give consideration to ensuring that any ownership changes/transfers executed on the blockchain protocol are reflected in the ownership of the underlying asset, where necessary. Where in traditional securities markets, central securities depositories are used to handle custody, responsibility becomes less clear when real world assets are tokenized and direct ownership is not necessarily held by the token holder and should be borne by the token issuer.

Additionally, while the use of intermediaries within the market infrastructure of traditional securities markets provides an extra level of protection in relation to areas such as settlement finality and unintended transfers, these risks need to be approached differently in digital token markets. Provisions need to be in place to ensure that on-chain settlement finality does not conflict with any legal enforceability of claims on the underlying asset. Smart contract audits also need to be periodically carried out to ensure bugs or manipulation can not lead to unintended transfers.

Q3.a.2 What are the possible regulatory requirements that may be imposed on market infrastructure institutions and market participants, so as to ensure good standards of corporate governance?

As stated in our response to Q2.3.6, Ripple believes that while much of the existing requirements for traditional securities will be applicable to market participants in the digital token market for RWAs, some key reforms will be required to realize the full potential of tokenized RWAs and ensure that these regimes are fit for purpose.

Ripple believes that any regulatory requirements in this regard should seek to align with international best practices and foster cross-border interoperability to prevent the fragmentation of markets.

This has been a key area of research in other jurisdictions such as Hong Kong and Singapore where focus has been on the development of a framework for the asset and platform layers of digital asset networks and how these can interact in practice. Specifically:

- Project Ensemble Sandbox[15] by the Hong Kong Monetary Authority ("HKMA") - A key goal of Project Ensemble is to examine the technical interoperability among tokenized assets, tokenized deposits and CBDC, while enabling industry participants to conduct end-to-end testing of tokenized asset transactions in practical business scenarios.
- Project Guardian[16] by the MAS - The concept of interoperable, open networks is one of the foundational principles of Project Guardian where its emphasis is embedded in their design options to enable the trading of digital assets across networks and liquidity pools.

We believe that specific regulatory requirements should focus on areas such as system resilience, smart contract execution and robustness, and the custody of underlying assets. In addition, contrary to traditional systems, audits of ledger based activity should capitalize on the transparency and immutability of the ledger. A fit for purpose approach would reduce disputes and fraud.

Q3.a.3 What are the possible conflicts of interest for various market participants in the digital token market? What possible regulatory measures may be imposed on the market participants to address the same?

In general, conflicts of interests that plague traditional markets would very likely continue to affect the digital token markets. Conflicts related to vested interest of advisory service providers are a one set of possible conflicts. Another conflict that may arise relates to insider trading especially as it would take a different form in tokenized markets whereby an issuer could have material information that would affect the value of the underlying asset and thus the token which they act on.

Exchanges and brokers will play a key role in digital token markets and could still be affected by traditional conflicts related to preferential fees

One unique conflict issue will be related to the nature of the blockchain ecosystems and the overlap that exists between a limited number of players. A robust ecosystem and a clear regulatory framework would help overcome these challenges.

Q3.b.1 What are the key technology risks in market infrastructure institutions and market participants in a digital token market? Are they different from the technology risks in respective institutions in the traditional securities market? If yes, please elaborate.

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[15] See https://www.hkma.gov.hk/eng/news-and-media/press-releases/2024/08/20240828-3/, *HKMA launches Project Ensemble Sandbox to accelerate adoption of tokenisation.*

[16] See https://www.mas.gov.sg/-/media/mas-media-library/development/fintech/project-guardian/project-guardian-open-interoperable-network.pdf, *Project Guardian Enabling Open and Interoperable Networks.*

The key technology risks inherent in digital token market infrastructure are primarily related to the security and robustness of the smart contracts governing the protocol. The main risk is that bugs, coding errors, or vulnerabilities in the smart contract can be exploited by malicious industry participants leading to loss or theft of funds.

This differs from risks associated with a traditional market setting whereby transactions are executed through intermediaries and settled through clearing houses. Smart contracts change the nature of counterparty and systemic risk.

Other technology risks include market manipulation through automated trading bots. Although ledger based trades are easy to monitor through existing on-chain monitoring tools, a lack of market surveillance strategy could amount to a risk. This differs from the traditional market setting due to the challenges of monitoring multiple on-chain protocols at a global level (rather than one venue such as a stock exchange), and the complications that can be introduced through cross-chain transactions.

Q3.b.2 What are the possible regulatory requirements that may be imposed on market infrastructure institutions and market participants, so as to adequately limit technology risks?

Introducing requirements at the issuance stage for smart contracts to have undergone a security audit by an independent third party can be an effective way of mitigating security risks.

Additionally, the use of on-chain analytic tools can assist with market surveillance and the detection of market abuse.

For market participants, requirements could include the implementation and robust testing of business continuity and disaster recovery plans to minimize disruption and ensure operational resilience in the event of technology failures.

Q3.b.3 Do you agree that use of Distributed Ledger Technology (DLT) and Smart Contracts by market infrastructure institutions and market participants changes the form and magnitude of technology risks posed to the digital token market? If yes, please elaborate.

Ripple believes that the use of DLT and smart contracts changes the form of the risks posed through a digital token market however we believe the enhanced transparency of ledger activity reduces the magnitude of risk. This was elaborated under question Q3.b.1.

Q3.b.4 What are the possible regulatory requirements that may be imposed on market infrastructure institutions and market participants using Regulatory Approach towards Tokenization of Real World Assets Distributed

Ledger Technology (DLT) and Smart Contracts, so as to adequately address the technology risks arising from the same?

Please see our response to Q3.b.2.

Q3.c.1 What are the key cyber risks in market infrastructure institutions and market participants in a digital token market? Are they different from the cyber risks in respective institutions in the traditional securities market? If yes, please elaborate.

The key cyber risks mirror those we have highlighted in our response to Q3.b.1 in relation to the robustness and security of the smart contracts in place governing the protocol.

For market participants responsible for the custody of the digital tokens referencing RWAs, the main risk lies in the security of the wallets used. The level of risk will depend on the security modules being deployed with various distinctions between the module types.

This was discussed under the cybersecurity section in our response to question Q2.2.3.

Q3.c.2 What are the possible regulatory requirements that may be imposed on market infrastructure institutions and market participants, so as to adequately limit cyber risk

In addition to regular smart contract audits, regulatory requirements may include the development of cybersecurity frameworks in line with international best practices and industry standards. This should include elements such as vulnerability scanning, penetration testing, and business continuity or disaster recovery planning

For market participants responsible for the custody of the digital tokens referencing RWAs, regulatory requirements should look to ensure best industry standards for wallet management. To ensure this, regulatory authorities can look to assess the following:

We believe it would be reasonable to expect that a custody provider holds the highest information security certification, i.e. System and Organization Control 2 (“SOC2”) for managing customer data and SOC1 on internal financial controls.

The International Organization for Standardization (“ISO”)’s ISO 27001 on Information Security is also an important standard for custody providers to ensure they are in line with, for which certification is available.

Q3.c.3 Do you agree that the use of Distributed Ledger Technology (DLT) and

Smart Contracts by market infrastructure institutions and market participants changes the form and magnitude of cyber risks posed to the digital token market? If yes, please elaborate.

Please see our response to Q3.b.3.

Q3.c.4 What are the possible regulatory requirements that may be imposed on market infrastructure institutions and market participants using Distributed Ledger Technology (DLT) and Smart Contracts, so as to adequately address the cyber risks arising from the same?

We believe that addressing through regulation the risks detailed under Q3.b.1 would minimise a number of cyber risks on market infrastructure.

This would be through mandating regular audits of existing smart contracts governing the protocol. In addition automated trading would require detailed monitoring of relevant on chain activity and corresponding risk mitigation plans.

Q3.d.1 What are the key Money Laundering/ Terrorist Financing (ML/TF) risks posed by a digital token market? Are they different from the ML/TF risks in the traditional securities market? If yes, please elaborate.

The key differences in the AML/CTF risks inherent in the digital token market compared to the traditional securities market is in the pseudonymous nature of transactions using blockchain technology. Transactions can be made between self-hosted wallets which can create challenges when attempting to trace beneficial ownership or the source of assets.

The fact that blockchain technology allows for instant settlement as well as seamless cross-border transactions also creates risks given how quickly illicit actors can move assets across wallets, blockchains, and countries in an attempt to obfuscate the trail of funds. However the transparency associated with ledger technology safeguards against that, especially with the availability of on-chain monitoring tools.

Q3.d.2 What are the possible regulatory requirements that may be imposed on market infrastructure institutions and market participants, so as to adequately limit Money Laundering/ Terrorist Financing (ML/TF) risks?

For the issuer of tokenized assets, it is important for regulatory requirements to be in place in relation to KYC to ensure that they are aware of who is purchasing the tokens and their source of funds.

This is also particularly important in secondary markets when providing off-ramp services, given the exchange from digital tokens to fiat is usually the ultimate aim of illicit industry participants.

Q3.d.3 Do you agree that the use of Distributed Ledger Technology (DLT) and Smart Contracts by market infrastructure institutions and market participants changes the form and magnitude of Money Laundering/ Terrorist Financing (ML/TF) risks posed by the digital token market? If yes, please elaborate.

Ripple believes that the use of DLT and smart contracts change the form of AML/CTF risks posed through a digital token market, however we believe the enhanced transparency of ledger activity reduces the magnitude of risk. This was elaborated under question Q3.d.1.

Q3.d.4 What are the possible regulatory requirements that may be imposed on market infrastructure institutions and market participants using Distributed Ledger Technology (DLT) and Smart Contracts, so as to adequately address the Money Laundering/ Terrorist Financing (ML/TF) risks arising from the same?

Possible regulatory requirements should include mandating detailed KYC checks on the initial token buyers at the issuance and distribution stage.

Another common requirement is the monitoring of on-chain activity, which can often be undertaken using third party analytics providers to assist with pre and post trade obligations.

Question Set 4: Providing suitable catalysts for organic growth and development of the Digital Tokens market

Q4.a.1 What are the key investor protection concerns in a digital token market? Are they different from the investor protection concerns in the traditional securities market? If yes, please elaborate.

One key investor protection concern relates to the concept of finality of settlement. This legal solution to ensuring that the transaction being undertaken will go through, even in the event of financial crisis or counterparty insolvency, becomes a technological problem when transferred to an on-chain model and unless specified at a protocol level in smart contracts, will not be in effect.

Consideration should be given therefore to how such a solution should be required as part of any trading in tokenized RWAs to ensure investors are protected in the event of a counterparty insolvency.

There are also concerns in relation to the market surveillance challenges presented by on-chain trading, where assets are borderless, traded in multiple venues and across multiple protocols. Blockchain analytic tools help to mitigate this concern to some extent, although surveilling multiple channels, rather than a single venue as in the case in traditional stock exchanges, demands considerably more resources and expertise.

Other investor protection concerns include accounting for the risks associated with the underlying asset being tokenized. Purchasing a token representing a fractionalized amount of real estate may not provide investors an insight into the physical condition of such real estate and whether the value is being misrepresented for instance. This risk also applies to commodities, particularly when these are perishable goods. A bushel of corn may be represented by a token for instance, but investors may not be provided with assurances that this underlying asset is still within its sell-by-date unless that information is also stored on the token.

Q4.a.2 What are the key investor education/ awareness concerns in a digital token market? Are they different from the investor education/ awareness concerns in the traditional securities market? If yes, please elaborate.

The increased participation and market access that tokenized RWA trading is set to bring to retail traders, particularly in industry sectors previously out of reach to this investor class, will create a greater need for education and understanding of the risks involved in the trading of such asset classes and industry sectors.

Such education should highlight the key differences between on-chain markets and the traditional finance sector. For instance, blockchain transactions are immutable and therefore any mistakes or errors in transactions are unlikely to be reversible. When self-custodying assets, if private keys used to hold assets are lost then assets are unlikely to be recovered.

Awareness initiatives should focus on hacking and scams that are becoming more sophisticated in all aspects of financial markets but particularly look to exploit investors' lack of understanding in the digital token markets.

They should also focus on the global nature of blockchain technology that has allowed retail participants to access services in other jurisdictions, where regulation is either weak or non-existent. It should highlight how the rights of the consumer and regulatory protections may not be as strong as they are in the investor's home jurisdiction and how investments should be made with added caution.

Q4.a.3 What are the key disclosures to be made by market infrastructure institutions and market participants in the digital token market for ensuring investor protection and awareness? Are they different from the disclosures being made in the traditional securities market? If yes, please elaborate.

The key disclosures that should be made by market participants should include:

1. Regulated status

   To ensure investor protection, it should be important that investors are aware that market participants they are dealing with are licensed and appropriately supervised by regulatory authorities. This should include disclosing the relevant regulatory authority and license held, the geographic location, and a link to the registered entities list of the regulatory authority evidencing the firm's regulatory status.

2. Certifications and adherences to industry best practices

   Market participants should disclose where they follow industry best practices and the certifications they hold in doing so. This should include evidence of such certification and links to further information on the industry standards adhered to.

3. Ownership of the underlying asset

   Throughout the transaction lifecycle, investors should be made aware of any periods in which they, as token holders, are not legally entitled to the underlying asset referenced.

Q4.a.4 What are the key due diligence requirements to be imposed on

market participants in the digital token market for ensuring investor protection and awareness? Are they different from the due diligence requirements on the market participants in the traditional securities market? If yes, please elaborate.

Due diligence of market participants in the digital token market would need to account for the type of risks associated.

A primary requirement could be the legal status of the underlying RWA and the strength of the legal claims/rights associated with the corresponding RWA token.

Additionally it is reasonable to expect market counterparts to provide details of custody and cybersecurity models adopted.

Finally, smart contracts will often govern relationships between market participants and should be reviewed and stress tested as part of any due diligence activity.

Q4.a.5 What are the suitable avenues for grievance redressal that may be provided to investors in a digital token market? Are they different from the grievance redressal mechanisms in the traditional securities market? If yes, please elaborate.

We do not believe grievance redressal should be significantly different in the digital token market. Issuers and secondary market exchanges should have the appropriate procedures in place to handle complaints in a clear and transparent manner.

Consideration should be given to legal disputes in relation to the rights afforded by a token to the underlying asset. This should not favour any one side in particular (i.e. the underlying asset holder) and should instead be considered on a case-by-case basis.

Moreover due to the recent nature of the digital tokens market, regulatory intervention and interpretation may be needed in order to help shape regulation and consequently the court's position.

Q4.a.6 Are there any other suitable measures for furthering the cause of investor protection and awareness in the digital token market? If yes, please elaborate.

We believe that investor education will be a key element of increasing investor protection in the digital token market. Additionally, we believe that guidance published by the regulatory authority has always been a useful tool in bringing industry participants in line with international standards and regulatory expectations. Such guidance can be derived from the traditional securities

market, particularly in relation to marketing practices and for the restriction of investment in certain asset classes by retail investors.

Q4.b.1 Do you agree that industry-level associations and bodies are well suited to develop best practices and common standards for the participants in the digital token market? Please give reasons supporting your opinion.

Ripple agrees that industry associations are well suited to develop best practices and common standards. As per our answer to Q4.b.4, an example of how this can be done effectively to maximise the benefits of the technology can be seen in Switzerland through associations such as the Swiss Blockchain Federation and the Crypto Valley Association which have engaged closely with law makers to draft regulations and policy.

We believe that it will be important to build a framework that works both at a global level while maintaining the necessary local adaptations. This dual approach ensures consistent governance while allowing for regional nuances. For example, issuers complying with high standards in one jurisdiction can leverage equivalent agreements to align closely with other markets. Adopting a high benchmark allows issuers of RWAs to offer high quality products across jurisdictions, supporting interoperability and global scale.

Such common standards should also look to strengthen cross-border cooperation and address the global challenges facing the digital token market, including issues such as AML/CFT and market abuse which will require a global concerted effort. To be effective, such standards would require collaboration between regulatory authorities and industry participants. We believe that initiatives that build regulatory capacity and leverage blockchain's transparency for oversight are key to ensuring that public-private cooperation can drive innovation while ensuring compliance and protecting consumers.

Q4.b.2 Do you agree that market participants in the digital token market are well suited to evolve a Code of Advertising/ Code of Marketing for themselves? Please give reasons supporting your opinion.

While Ripple generally agrees with this position and believes that market participation is essential when forming any form of regulatory standards or practices, we believe that a certain level of regulatory participation is also essential in order to safeguard consumer interest and to protect from industry collusion. We therefore advocate for an industry working group with input and representation from the relevant regulatory authorities. We believe such a Code of Marketing should draw direction from the rules governing traditional securities frameworks and believe that any approach should be similar.

Q4.b.3 Do you agree that market participants in the digital token market are well suited to evolve a Code of Conduct/ Code of Ethics for themselves? Please give reasons supporting your opinion.

As per our answer to Q4.b.2, we acknowledge the value in an industry-led initiative although we wish to stress the importance of input from the relevant regulatory authorities in the development of any Code of Conduct/Code of Ethics.

Similarly to our previous answer, we believe such a code should be consistent and in line with the requirements set for the traditional securities market.

Q4.b.4 Are self-regulatory organizations or industry-level associations well suited for enforcing the best practices and common standards evolved for market participants in the digital asset domain? Please give reasons supporting your opinion.

As per our answer to Q4.b.1, we would recommend any initiative to enforce best practices and common standards to be a joint-effort between industry and the relevant regulatory authorities.

A good example of how this can work effectively is in Switzerland where the digital token market relies heavily on self-regulation through industry associations that establish best practices and standards while the regulatory authorities such as the Swiss Financial Market Supervisory Authority ("FINMA") oversee the sector. Public-private partnerships such as the Swiss Blockchain Federation have issued guidelines for tokenization that members adhere to while collaborating with regulatory authorities on policy recommendations.

Other associations, such as the Swiss Financial Services Standards Association, are FINMA-recognized self regulatory organizations that provide AML supervision for digital token firms not directly under FINMA supervision.

Q4.c.1 What are the suitable avenues for imposing a disclosure-based regime on the market infrastructure institutions and market participants in the digital token market? Please elaborate.

Ripple believes that any avenues for a disclosure based regime should be based on the existing rules and standards in place for traditional securities markets.

For the digital token market, we believe that investor disclosures should be set at different levels of the on-chain trading process, primarily as part of the on and off ramps.

Q4.c.2 Do you agree that sandbox approach is useful for lowering the compliance burden and fostering innovation in the digital token market? Please give reasons supporting your opinion.

Yes, Ripple views the sandbox approach as a vital pillar in building the understanding and capabilities necessary for tokenising RWAs and creating a functioning and effective regulatory framework.

This is particularly important when considering the need for a sustainable transition of wholesale capital markets. In the short term this can be through specifically targeted reforms that can be applied to make a sandbox initiative attractive and provide a successful path for testing regulatory modifications to enabling tokenization in wholesale markets.

We believe that any approach involving sandboxes should enable the experimentation of different settlement options in environments that closely replicate real-world conditions, ensuring that any proposed solutions are both robust and scalable. In addition, it should seek to:

- Provide the ability for digital asset markets to launch (within certain safeguards);
- Allow the IFSCA to observe and learn from the real-world operation of such markets, and using those observations to concurrently evolve the regulations and licenses; and then
- Allow the digital markets and digital asset use cases to 'graduate' out of the sandbox into adjusted, fit-for-purpose regulations or licenses.

Q4.c.3 What are other possible measures that may be adopted for lowering the compliance burden on the market infrastructure institutions and market participants in the digital token market? Please elaborate.

Measures that could be adopted to lower the burden of compliance on market participants and infrastructure could include detailed guidance setting out the expectations of the relevant regulatory authorities. This will lower the burden of compliance as market participants will be able to gain comfort that they are in compliance with any expectations or regulations by introducing certain controls. The alternative scenario, where no guidance is published, creates greater uncertainty and debate amongst firms as to the more effective ways in which to proceed. Instead, we recommend that the IFSCA works to foster proactive collaboration between itself and other regulatory authorities and market participants, in order to agree a common taxonomy and minimum standards for the digital token market.

Q4.c.4 What are other possible measures that may be adopted for fostering innovation in the digital token market? Please elaborate.

Ripple believes that, as is the case for all emerging and innovative sectors, having dedicated teams focused on growth and eliminating frictions for market participants will be essential.

It will also be very important to ensure that initiatives exist for the education of both market participants and those in the traditional market on the opportunities and risks that exist within the market of tokenized RWAs.